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ORIGINAL

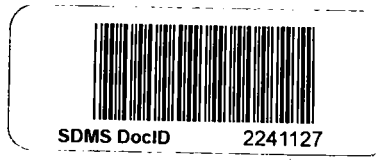
SITE ASSESSMENT TECHNICAL ASSISTANCE

EPA CONTRACT 68-S5-3002

27 July 1999

Mr. Mike Towle (3HS31)
On-Scene Coordinator
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

TDD No. 9907-03
DCN E0000491



Subject: 12th Street Landfill Site - Sampling Plan

Dear Mr. Towle:

Enclosed is the 12th Street Landfill Site Sampling Plan for your review. Please feel free to contact me at (215) 238-0338, Ext. 224, regarding any aspect of this report.

Very truly yours,

ROY F. WESTON, INC.

(b) (4) [redacted]

Site Leader

Attachment

cc: TDD File

SATA 0303669 12th Street Landfill Sampling Plan

Sampling Plan

12th Street Landfill Site
Wilmington, New Castle County, DE

27 July 1999

Prepared for

U.S. Environmental Protection Agency Region III

Removal Response Section

Philadelphia, PA

TDD No. 9907-03
Contract No. 68-S5-3002

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the Superfund Amendments and Reauthorization Act (SARA) of 1986, U.S. Environmental Protection Agency (EPA) Region III Removal Response Section On-Scene Coordinator (OSC) Mike Towle has directed the Roy F. Weston, Inc. (WESTON®), Site Assessment Technical Assistance (SATA) team to conduct a removal assessment at the 12th Street Landfill Site, Wilmington, New Castle County, Delaware.

Exploratory trenching operations will be conducted at the site in order to confirm or deny the presence of buried drums of hazardous substances on site. Numerous drums were recently observed on the surface. Soil and drum samples will be collected in order to characterize the drum contents. Also, a white ash-like substance observed approximately 10 feet below ground surface along the creek bank will be sampled. Analytical results will be used to support the EPA's decision to initiate a removal action at the site if results are above emergency removal guidelines and buried drums are encountered.

2.0 SITE DESCRIPTION

2.1 Location

The site is located in Wilmington, New Castle County, Delaware, as seen in Figure 1, Site Location Map (Streets Plus, 1997). The approximate site coordinates are 39° 44' 15" north latitude and 75° 31' 35" west longitude (USGS, 1987).

2.2 Site Description

The 12th Street Landfill Site is located in an industrial area on 12th Street, west of the Interstate-495 12th Street ramp, near Gander Hill Prison in Wilmington, New Castle County, Delaware. The site consists of two land parcels. Parcel 19 is bordered to the west by Brandywine Creek, to the north by Asset Recovery Services, and to the east and south by state of Delaware owned land (parcel 14). Parcel 14 is bordered to the north by Asset Recovery Services, to the east by Conrail railroad tracks and 12th Street, to the south by Conrail railroad tracks, and to the west by parcel 19 (Bresland, 1999).

Parcel 19 was previously owned by Julius Wemman until 1926. Between 1926 and 1930 the parcel was owned by the mayor and council of Wilmington. The parcel was owned by the Wilmington Economic Development Corporation from 1930 to 1987. This parcel is presently owned by the city of Wilmington. Parcel 14 was previously owned by George W. Talley until 1887. Between 1887 and

WESTON® MANAGERS DESIGNERS/CONSULTANTS FEDERAL PROGRAMS DIVISION	12th Street Landfill Wilmington, New Castle Co., DE	TDD#: 9907-03 ORIGINAL PCS#: 5472

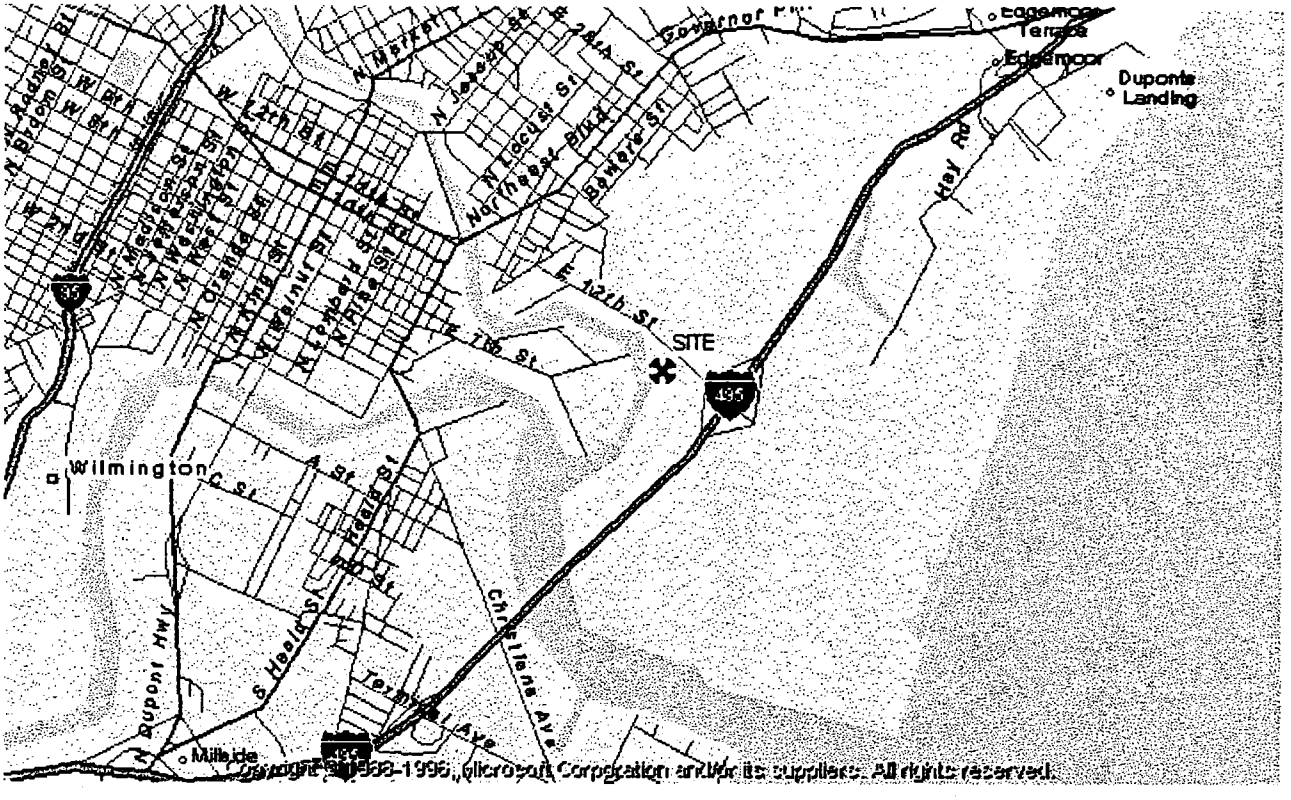


Figure 1
Site Location Map

1971, the parcel was owned by the Philadelphia, Baltimore, and Washington Rail Road Company. This parcel is presently owned by the state of Delaware. There is no information on what the parcels were utilized for during previous ownerships. Apparently, both properties were utilized as unauthorized dump sites, in which at least (10) 55-gallon drums, rubber hoses, slag, and a light colored ash-like material were disposed of on the property within the last 25 years (Bresland, 1999).

2.3 Climate

New Castle County has a humid, continental climate that is modified by its proximity to the Atlantic Ocean. The average annual temperature in Wilmington is about 54° F (DOC, 1993). The warmest time of the year is the last half of July when the maximum temperature averages about 87° F (DOC, 1993). The coldest period of the year is the latter part of January and the first part of February when the minimum temperatures range between 22 and 25° F (DOC, 1993). The annual precipitation in Wilmington averages about 45 inches. The average annual snow fall in Wilmington is 21.4 inches, but the annual total varies from year to year. The snow is very often mixed with rain and sleet (DOC, 1993).

2.4 Topography and Surface Water

The area of concern (AOC) consists of two parcels totaling 20 acres and is heavily vegetated. The AOC is relatively flat, with an average elevation of about 15 feet above sea level. The AOC is accessed by a railroad track from the northeastern side. An approximately 10-foot high slope rises to a level plateau west of the railroad spur. The area between the railroad spur and including the southern portion of the AOC is heavily covered by phragmite vegetation, which stands approximately 8 to 10 feet high. The northern half of the AOC is covered with leafy underbrush and young trees with 2-to 6-inch diameter trunks. The western side of the AOC abuts against the Brandywine Creek and is approximately 10 to 15 feet above the creek water line during low tide. The alleged fill area may encompass the area between the eastern bank of Brandywine Creek and the slope adjacent to the railroad spur (SATA, 1999).

The Brandywine Creek flows into the Christina River downstream of the site. The Brandywine Creek has its headwater in the Piedmont Plateau in Pennsylvania, which defines the border between Chester County and Delaware County in Pennsylvania and enters Delaware just north of Beaver Valley. The creek meanders through Wilmington until it joins the Christina River which then joins the Delaware River southeast of Wilmington (Wik,1996).

2.5 Local Geology

The Geology of the Wilmington Area, Delaware Geologic Map Series Number 4 geologic map prepared by the Delaware Geologic Survey indicates that the 12th Street Landfill Site is located on the border of the Piedmont Physiographic Province and the Atlantic Coastal Plain. The contact, referred to as the fall line, is located approximately 2,000 feet north of the 12th Street Landfill Site.

The bedrock at the site consist of metaigneous and metasedimentary rocks of the Wilmington Complex. The composition is primarily hypersthene-quartz-andesine gneiss with minor amounts of biotite and magnetite. Regolith overlying the bedrock of the area reportedly varies from 0-20 feet (Wik,1996).

2.6 Regional Hydrogeology

The unconsolidated aquifer overlying the bedrock generally forms at the base of the regolith, directly above the unweathered bedrock. The aquifer typically acts as an unconfined aquifer. The piedmont aquifers are complex and unpredictable due to the variability of fractures. The rock units of the Piedmont are relatively impermeable, except where weathering or fracturing has taken place (Wik,1996).

2.7 Local Hydrogeology

Due to the variability of the regolith thickness and its limited vertical extent in the vicinity of the site, water yields are expected to be low. Groundwater at the site is tidal influenced. The tide level for this area fluctuates 6.5 feet between low tide and high tide.

3.0 SAMPLING ACTIVITIES

3.1 Objective

The objectives of this sampling event are to determine:

- If drums presently exposed on the surface contain hazardous substances.
- If any drums are buried on site.
- The total quantity of drums on site.
- If hazardous substances from these drums have migrated into the soil, and therefore potentially into the groundwater.
- If the light colored ash-like material observed along the creek bank contains hazardous substances.

3.2 Scope of Work

In the event that drums or containers are located during the site reconnaissance and/or exploratory trenching operations at the site, soil samples will be collected from the trenches near those drums, and all drums containing material will be sampled. Groundwater samples will be collected from the exploratory trenches during excavation activities if groundwater seeps are found along the walls of the trench.

All samples will be collected within site boundaries, as illustrated in Figure 2, Site Sketch. The exact locations of these samples will be determined on site by the OSC during site reconnaissance and or excavation activities.

3.3 Data Use

The data will be used to characterize drum contents, identify soil contamination and potential groundwater contamination through migration of hazardous substances from deteriorated buried drums. The analytical data will be compared to emergency removal guidelines (ERGs) and other applicable guidance.

The data will be utilized to support the decision to initiate an EPA removal action at the site.

3.4 Soil Sampling

Surface soil samples will be collected from the ground surface adjacent to drum cluster areas. Subsurface soil samples will be collected from the exploratory trenches during excavation activities. The excavator conducting the exploratory trenching operations will be utilized to obtain the subsurface soil samples, which will be collected directly from the bucket of the excavator. For samples collected from 0 to 6 inches deep, collection will be conducted in accordance with SATA SOP No. 302, Surface Soil Sampling, by a SATA member (SATA, 1998). The subsurface soil samples will be collected in accordance with SATA SOP No. 304, Subsurface Soil Sampling, by a SATA member (SATA, 1998).

3.5 Ash-like Material Sampling

An ash-like material which was observed along the creek bank approximately 10 feet below ground surface will be sampled. The material will be sampled in accordance with SATA SOP No. 403, Waste Pile Sampling, by a SATA member (SATA, 1998).

3.6 Drum Sampling

Drum samples will be collected from all drums found during the site reconnaissance and/or excavation activities that contain material. The excavator conducting exploratory trenching operations will be utilized to stage the drums for sampling. All drum samples will be field screened using hazardous characteristic (hazcat) testing. The samples will be sent to a laboratory for further analysis based on the hazcat results. Drum samples will be collected by a SATA member in accordance with SATA SOP No. 401, Drum Sampling (SATA, 1998).

3.7 Groundwater Sampling

Groundwater samples will be collected from the exploratory trenches if groundwater seeps are found along the walls of the trench. A peristaltic pump with appropriate tubing will be used to obtain the water from the trench once a sufficient amount of water is in the trench.

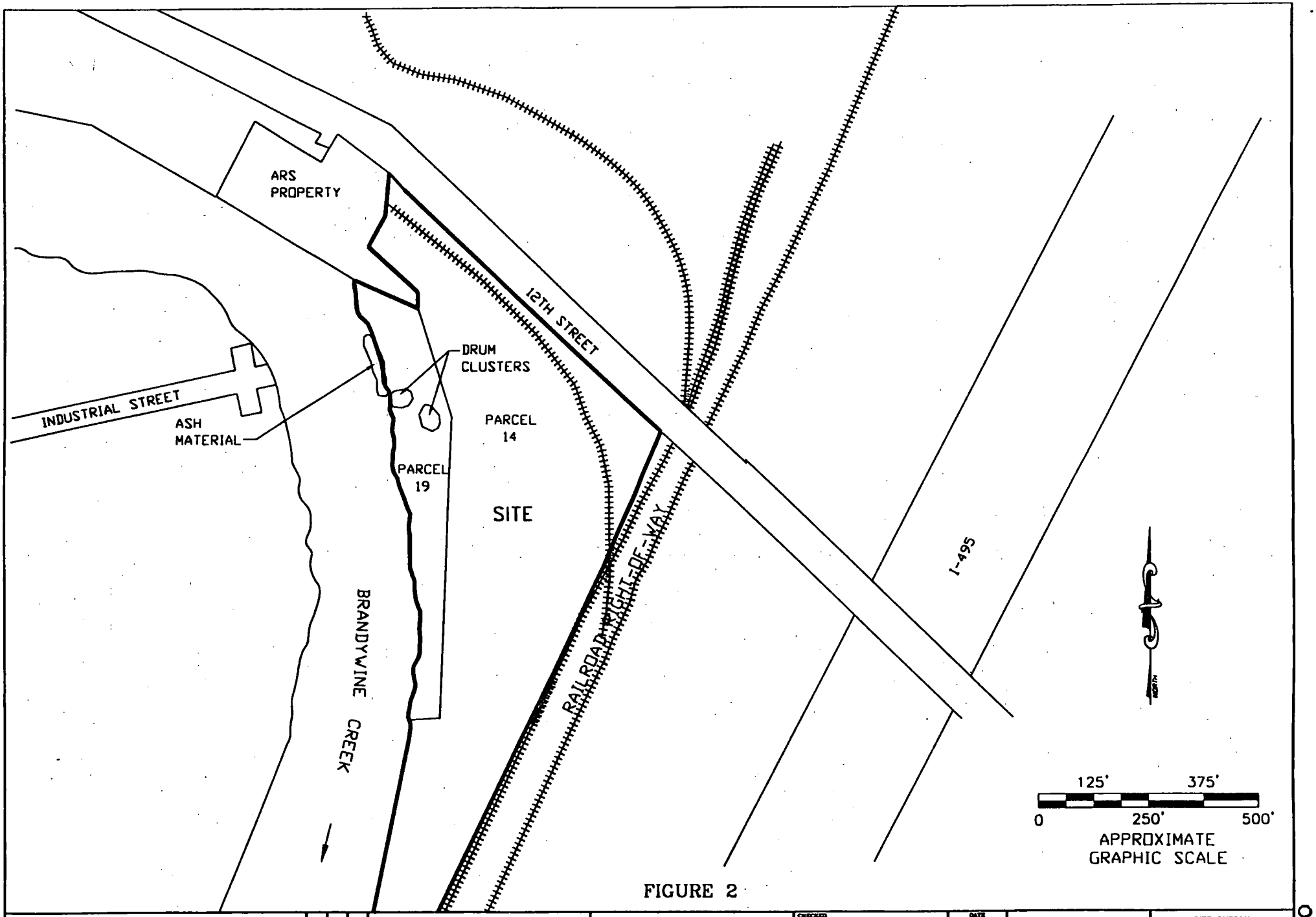


FIGURE 2

12TH STREET LANDFILL
NEW CASTLE COUNTY
WILMINGTON, DELAWARE

U.S. ENVIRONMENTAL PROTECTION AGENCY
WESTON FEDERAL PROGRAMS DIVISION

SITE SKETCH

ORIGINAL

4.0 ANALYTICAL PARAMETERS

All samples collected in relation to the 12th Street Landfill Site will be identified with the sample prefix "TS" in addition to the sample type specification (see Table 1). The sample matrices to be collected, parameters to be analyzed, analysis methods, sample containers needed, and detection limits required are also provided in Table 1 for all samples. The samples will be sent to a SATA contracted laboratory for analysis.

Table 1
Analytical Parameters

Sample Location	Matrix	Analytical Parameter	Test Method	Containers Used Preservatives Used	Detection Limits
TS-SS-01 through TS-SS-05, TS-SB-01 through TS-SB-05, TS-FD-01	Soil	Volatile Organic Compounds	SW-846 8260	1 4-oz VOA vial	ERG
		Semi-volatile Organic Compounds	SW-846 8270	1 8-oz wide mouth glass jar	ERG
		Pesticides and PCBs	SW-846 8081/8082		
		Total Metals	SW-846/3050 6010/7471	1 8-oz wide mouth glass jar	ERG
		Cyanide	SW-846 9010		
TS-TB-01 (VOC only) TS-TP-01W through TS-TP-05W, TS-RB-01, TS-FB-01, TS-FD-02	Water	Volatile Organic Compounds	SW-846 8260	3 40-mL VOA vial, HCl pH<2	ERG
		Semi-Volatile Organic Compounds	SW-846 8270	2 1-L amber glass jar	ERG
		Pesticides and PCBs	SW-846 8081/8082	2 1-L amber glass jars	ERG
		Cyanide	SW-846 9010	1 1-L Poly, NaOH pH>12	ERG
		Metals	SW-846/3020 6010/7470	1 1-L Poly, HNO_3 pH<2	ERG

SS = Surface Soil SB = Subsurface Soil FD = Field Duplicate TP = Test Pit W = Water RB = Rinsate Blank
FB = Field Blank DC = Drum Contents AM = Ash-like Material ERG = Emergency Removal Guideline TB = Trip Blank
PCB = Poly Chlorinated Biphenyls VOA = Volatile Organic Analysis

Table 1
Analytical Parameters (continued)

Sample Location	Matrix	Analytical Parameter	Test Method	Containers Used Preservatives Used	Detection Limits
TS-DC-01 through TS-DC-05, TS-AM-01 through TS-AM-03, TS-FD-03	Waste Material	Volatile Organic Compounds	SW-846 8260	1 4-oz VOA vial	ERG
		Semi-volatile Organic Compounds	SW-846 8270	1 8-oz wide mouth glass jar	ERG
		Pesticides and PCBs	SW-846 8081/8082		
		Total Metals	SW-846/3050 6010/7471	1 8-oz wide mouth glass jar	ERG
		Cyanide	SW-846 9010		

SS = Surface Soil SB = Subsurface Soil FD = Field Duplicate TP = Test Pit W = Water RB = Rinsate Blank
FB = Field Blank DC = Drum Contents AM = Ash-like Material ERG = Emergency Removal Guideline TB = Trip Blank
PCB = Poly Chlorinated Biphenyls VOA = Volatile Organic Analysis

5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROCEDURES

This sampling plan is designed to satisfy the Office of Emergency and Remedial Response Data Quality Objectives for Superfund, EPA/540/R-93/078, PB94/963204, September 1993.

5.1 Quality Control of Field Activities

The SATA Site Leader will be responsible for ensuring that sample quality and integrity are maintained in accordance with the SATA Quality Assurance Project Plan. Field quality control (QC) will consist of three field duplicates, one trip blank, one rinsate blank, and one field blank as outlined in Table 1, and sample documentation as referenced in SATA SOP No. 103, Chain of Custody Documentation and SATA SOP No. 101, Logbook Documentation (SATA,1998). Rinsate blanks will be collected to test for the effectiveness of decontamination procedures. Field blanks will be collected to test for contaminants that could possibly be introduced by sample transport. Field duplicate samples will test the reproducibility of sampling procedures and results. Trip blanks for volatile organic analysis will be collected to test for contaminants that could possibly be introduced by sample transport.

5.2 Sample Packaging and Storage

Sample containers will be labeled and shipped with a sample label affixed to each container. Samples will be placed in plastic zipping bags. Bagged containers will be placed in appropriate transport containers and the containers will be packed with appropriate absorbent material, such as vermiculite, and preserved with ice, if necessary. All sample documents will be affixed to the underside of each

transport container lid. The lid will be sealed with shipping tape, and custody seals will be affixed to the transport container. Transport containers will be labeled with the origin and destination locations.

Regulations for packaging, marking, labeling, and shipping of hazardous materials and wastes are promulgated by the U.S. Department of Transportation (DOT). Air carriers which transport hazardous materials, in particular, Federal Express, require compliance with the current International Air Transport Association (IATA) Regulations, which apply to the shipment and transport of hazardous materials by air carrier. SATA will follow IATA regulations to ensure compliance.

5.3 Laboratory QC

Laboratory QC will consist of all QC stated in the Contract Laboratory Program (CLP) Statement of Work (SOW) and include all forms and deliverables required in the SOW.

5.4 Data Validation

Data validation will be performed by SATA in accordance with EPA Region III Modifications to the EPA CLP National Functional Guidelines for Data Review. A data quality report will be submitted to the EPA.

6.0 INVESTIGATIVE DERIVED WASTE (IDW) PLAN

Investigative derived wastes (IDW) include personal protective equipment (PPE) and disposable sampling equipment (DSE). PPE and DSE will be decontaminated and rendered non-hazardous. All dry PPE and DSE will be double-bagged and disposed as dry industrial waste.

7.0 FIELD ACTIVITIES

Field activities will be scheduled after EPA approval of this sampling plan. Field work will begin with a site reconnaissance to familiarize the sampling team with the sampling locations. If necessary, this sampling plan will be modified in accordance with the site-specific conditions encountered to ensure that the sampling objectives are met.

SATA members will collect samples and will complete all necessary documentation, prepare the samples, and pack the samples for shipment. All sampling will be conducted in accordance with SATA SOPs. All field activities will be conducted in accordance with the SATA team's health and safety plan for the site.

8.0 PROJECT MANAGEMENT

The SATA Site Leader will manage the project by coordinating with the EPA OSC, scheduling field activities and personnel requirements, and directing and overseeing all on-site and off-site activities associated with this project. The SATA Site Leader will document and manage all collected samples.

9.0 FIELD EQUIPMENT/HEALTH AND SAFETY

All field activities will be conducted in accordance with the SATA team's health and safety plan. Level D PPE will be worn during the site reconnaissance, and on-site soil and water sampling activities, unless air monitoring results warrant an upgrade to Level C or Level B PPE. Level B PPE will be worn during on-site excavation activities and drum/ash-like material sampling activities.

10.0 PROJECT SCHEDULE

The field activities for this site are currently anticipated to begin on 16 August 1999. When excavation and sampling activities are completed, a trip report will be drafted. The completion of the draft trip report will depend upon the validation of analytical results by SATA. In the event that hazardous substances and drums are present, the EPA may initiate a removal action at the site to mitigate the threat posed to public health or welfare and the environment.

11.0 REFERENCES

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WIK Associates Inc., 1996. *Remedial Investigation Report Diamond State Salvage.* Wilmington, DE. August.